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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,494	01/04/2006	Steinar Bjornstad	OSL-034	8273

3897 7590 06/16/2010

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EXAMINER	
CURS, NATHAN M	
ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
06/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,494	BJORNSTAD, STEINAR	
	Examiner	Art Unit	
	NATHAN M. CURS	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Allowability Withdrawn

1. The indicated allowability of claims 3, 9, 11, 13, 15-17, 20, 23, 24, 28, 29 and 31 is withdrawn in view of the rejections of the amended independent claims under 35 USC § 112-1st paragraph.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, and each of claims 2-17 by way of dependence, now recites that the SOP of each complete packet functions as a label indicating a QoS value for that packet. The specification supports sending different QoS packets on different polarizations, but SOPs of packets functioning as labels is new matter.

Claim 7 recites that the optical switching matrix is adapted separate packets of a first QoS class and payload and header information (i.e. sub-packet segments) of a

second QoS. An optical switching matrix that routes packets of one QoS on a packet basis and packets of another QoS on a sub-packet basis is new matter.

Claim 18, and each of claims 19-31 by way of dependence, now recites that the SOP of each complete packet functions as a label indicating a QoS value for that packet. The specification supports sending different QoS packets on different polarizations, but SOPs of packets functioning as labels is new matter.

4. Claims 12 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 12 recites that the network arrangement is adapted for more than two states of polarization for signaling traffic. The specification only enables signaling based on two states of polarization, with two-state polarization beam splitters, etc.

Regarding claim 14, the specification does not teach how to use the change of states of polarization for the purpose of separating different QoS. In other words, there is no disclosure that establishes or explains how a change over time of two already distinct states of polarization could be the causal agent of a separation event that separates QoS not already separated. Therefore, a person of ordinary skill reading the specification would not know how to make and/or use the invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 4, 5-8, 18, 19, 21, 22, 26, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodialam et al. ("Kodialam") (US Patent Application Publication No. 2002/0018264) in view of Van Der Tol (US Patent No. 5,900,957), and further in view of Handelman (US Patent Application Publication No. 2003/0048506).

Regarding claims 1 and 18, Kodialam teaches a communication network arrangement for handling packets within optical or combined optical/electrical packet switched networks comprising, at least an ingress node adapted to multiplex optical packets (paragraph 28 teaches an ingress node and paragraphs 23 and 25 teach a WDM network wherein signals of different wavelengths are multiplexed together) and an egress node adapted to demultiplex received optical packets (paragraph 28 teaches an egress node and paragraphs 23 and 25 teach a WDM network wherein a group of wavelengths multiplexed on the same fiber are demultiplexed), characterized in that the ingress node has means for transmitting packets of a first QoS class, and transmitting packets of a second QoS (paragraph 48 teaches QoS as a label in the transmitted packets based on their priority). However, Kodialam does not teach transmitting different QoS signals on different states of polarization. It is known in the art to transmit

signals with different polarizations for determining label means. For example, Van Der Tol teaches a system where a transmitted packet's payload and header are multiplexed based on orthogonal polarizations and where the received packet's payload and header are demultiplexed accordingly (fig. 1 and column 6, lines 1-13 teach the transmitted packet's address signal having one polarization orthogonal to the payload, and where the orthogonal signal is split by a polarization beam splitter and interpreted). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kodialam, including packets having different QoS information in their headers, with the payload and header polarization multiplexing and demultiplexing means and technique for quick reading of header information as taught by Van Der Tol using polarization as a basis for determining address or header information in the optical domain (column 3, lines 12-20 teach this advantage).

Also, the combination of Kodialam and Van Der Tol discloses using different polarizations for a packet headers and payloads, but does not disclose that different packets will use different states of polarization from each other. Handelman discloses using orthogonal polarizations to merge two polarized packets into a single wavelength channel (claims 20 and 21). One of ordinary skill in the art at the time of the invention could have used orthogonal polarization to merge two polarized packets of the combination into a single wavelength channel, and the results would have been predictable; namely, each wavelength channel would have double bandwidth, where two packet payload travel orthogonally on the same wavelength, with their respective headers also traveling orthogonally on the same wavelength. Therefore, it would have

been obvious to one of ordinary skill in the art at the time of the invention to use orthogonal polarization to merge two polarized packets of the combination into a single wavelength channel, for the predictable of each wavelength channel having double bandwidth.

Claims 1 and 18 also recites that the SOP of each complete packet functions as a label indicating a QoS value for that packet, which is a recitation of intended use. Intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. As recited in the claims, the use of SOP as a label (i.e. abstract indicia) does not result in any structural differences relative to the prior art; the optical behavior and functionality of the system is the same regardless of whether or not the existing SOP is considered to be a label. The SOP of the combination is capable of the claimed use and thus reads on the claim.

Regarding claims 2 and 19, Kodialam and Van Der Tol and Handelman teach the limitations of claims 1 and 18, characterized in that the ingress node while transmitting said packets of said second type in said second state of polarization, has means for simultaneously transmitting a header in said first state of polarization (Van Der Tol: fig. 1 and column 6, lines 44-67 teach the data signal and the address signal with orthogonal polarizations being simultaneously transmitted out).

Regarding claims 4 and 21, Kodialam and Van Der Tol and Handelman teach the limitations of claims 1 and 18, characterized in that the second and first state of

polarization are substantially orthogonal states (Van Der Tol: fig.1 and column 6, lines 1-13 and Handelman: claims 20 and 21 as applicable in the combination).

Regarding claims 5 and 22, Kodialam and Van Der Tol and Handelman teach the limitations of claims 1 and 18, and teaches SOP alignment means for the received packet (Van Der Tol: column 6, lines 44-50 teach a polarization beam splitter oriented so that the polarization components are split correctly) and polarization means for demultiplexing the received packets, and polarization means for multiplexing packets for forwarding (Van Der Tol: fig. 1 and Handelman: claims 20 and 21 as applicable in the combination).

Regarding claim 6, Kodialam and Van Der Tol and Handelman teach the limitations of claim 1, and at least one core node adapted to split the received packets by polarisation and to separate packets according to the packets state of polarization (Van Der Tol: column 6, lines 42-52 teach a polarization beam splitter for separating the signal into its polarization components) and said at least one core node has a first optical switching matrix (Van Der Tol: column 6, lines 52-55 teach an optical switching matrix, a 2x2 switch as part of the means involved for the header/payload split processing) and a second electronic switching matrix (Van Der Tol: column 6, lines 52-55 teach an electronic address and controlling of the matrix).

Regarding claim 7, Kodialam and Van Der Tol and Handelman teach the limitations of claim 6, characterized in that the first optical switching matrix is a wavelength router adapted to separate packets of a first class, payload of a second class and header information of the second class (Van Der Tol: column 6, lines 52-67

teach a system wherein both payload and header signals are sorted through the switch based on header information).

Regarding claim 8, Kodialam and Van Der Tol and Handelman teach the limitations of claim 1, wherein the network arrangement further comprises at least one core node, said core node having at least one polarisation beam splitter (PBSI) and at least one optical demultiplexer (Van Der Tol: column 5, lines 54-65 teach an input port on the node which accepts signals from a packet transmitter that has an address signal A and a data signal I multiplexed together and demultiplexes them based on their polarization with a polarization beam splitter).

Regarding claim 26, Kodialam and Van Der Tol and Handelman teach the limitations of claim 22, characterized in that at least one core node in the optical packet switched network is SOP-aligning received packets (Van Der Tol: column 6, lines 44-50 teach a polarization beam splitter oriented so that the polarization components are split correctly).

Regarding claim 27, Kodialam and Van Der Tol and Handelman teach the limitations of claim 22, characterized in that when a first packet of a first type of class arrives at a switch the following steps are carried out: a controlling device registering that the first packet is present at the input (Van Der Tol: column 6, lines 52-55 teach a control unit for registering the packet), then delaying the first packet in a FDL in a first predetermined period of time (Van Der Tol: column 6, lines 57-62 teach a delay line for delaying the signal), and reserving an output where the first packet is directed to be

transmitted (Van Der Tol: column 6, lines 63-67 teach determining an output port for transmitting the packet).

7. Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodialam, Van Der Tol and Handelman, as applied to claims above, in view of Xiaojun Fang (US Patent Application Publication No. 2003/0026250), referred herein as Fang.

Regarding claims 10 and 30, Kodialam and Van Der Tol and Handelman teach the limitations of claims 1 and 18. However, they do not expressly teach a communication network arrangement characterized in that the first QoS class represents GS- packets and the second QoS class represents BE-packets. It is well-known in the art to use both best effort service and guaranteed service. For example, Fang teaches a system that utilizes both best effort service and guaranteed service (paragraph 7 teaches a system with IP traffic for best-effort service and traffic for guaranteed service). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the combination to use best effort and guaranteed service for the QoS of the combination, for benefit of assuring important traffic has guaranteed delivery, with non-critical traffic delivered with a best effort.

Response to Arguments

8. Applicant's arguments filed 3 March 2010 have been fully considered but they are not persuasive.

Regarding claim 12 rejected under 35 USC § 112-1st paragraph, Applicant argues that the disclosure supports combining signal that are of any SOP, and that they do not have to be orthogonal. This argument is not persuasive for the corresponding rejection because the claim is not reciting that any two SOPs can be used, rather, the claim is reciting that 3+ SOPs are simultaneously used for signaling, which is not enabled.

Regarding claim 14 rejected under 35 USC § 112-1st paragraph, Applicant's arguments are directed to amplitude changes at the output of the beamsplitter based on incoming polarizations. This argument is not persuasive because the claim recites *using the change* of said first and second SOPs *for separating*. In other words, the claim requires the separation to be an effect of the SOPs changing themselves; this is not enabled. Even in Applicant's argument, the changing SOPs are not making the separation happen, rather, the beam splitter is making the separation happen.

Regarding claims 1 and 19 rejected under 35 USC § 103, Applicant argues that Applicant's arguments of 16 July 2009 still apply to Kodialam and Van Der Tol. However, Applicant does not here address the merits of the Office's corresponding Response to Arguments of 12 November 2009, thus Applicant's assertion here that the previous arguments still apply is not persuasive.

Applicant also argues that the prior art does not disclose using SOP as a packet label. This argument is not persuasive for overcoming the rejections for two reasons: 1) use of SOP as a packet label is new matter, as described above, and 2) claiming use of SOP as a label is an intended use recitation, as described above, and since the prior art is capable of the intended use (regardless of explicitly disclosure), it thus reads on the claim.

Further, the newly added language "the state of polarization of each complete packet" is not equivalent to saying that each complete packet has only a single state of polarization, as evidenced by the dependent claims which specifically require different SOPs for header/payload (e.g. claims 2, 11, 19). Thus, the state of polarization of each "complete packet" of the combination, made up of the SOP of the header and the SOP of the payload, reads on the claim language.

Regarding claim 7, Applicant argues that the prior art does not disclose a router separating a complete packet of the first QoS. However, claim 7 has new matter as described above. The cited portion of the specification does not disclose an optical switching matrix that routes packets of one QoS on a packet basis and packets of another QoS on a sub-packet basis.

Regarding claim 26, Applicant argues that Van Der Tol does not teach re-polarizing of received complete packets. This argument is not persuasive because claim 26 does not recite re-polarizing of received complete packets. Claim 26 only recite "SOP-aligning received packets". The Van Der Tol polarization beam splitter, oriented so that the received polarization components of packets are split correctly, is

"SOP-aligning received packets". Any re-polarizing that might be in the specification is not read into the broader "SOP-aligning" of the claims.

Regarding claim 27, Applicant argues that Van Der Tol's FDL delay is for a different purpose than Applicant's FDL delay, and argues that Applicant's purpose is to delay the arriving packet to allow already schedule packets to finish transmitting. This argument is not persuasive because the claims are broader than argued by Applicant and do not contain any language that translates any differences in purpose into differences in structural features and/or method steps.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN M. CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Primary Examiner, Art Unit 2613